Sequence Listing

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<110> Genentech, Inc., Hsei, Vanessa
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      Leong, Steven R.
      Shahrokh, Zahra
      Zapata, Gerardo A.
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Ala Leu Ile Tyr Ser Ser Ser Tyr Arg Tyr Ser Gly Val Pro Asp
Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile
 Ser His Val Gln Ser Glu Asp Leu Ala Asp Tyr Phe Cys Gln Gln
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                                      85
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Pro Phe Glu 123

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35 40 45

Glu Leu Val Ala Thr Ile Asn Asn Gly Asp Ser Thr Tyr Tyr 50 55 60

Pro Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala 65 70 75

Lys Asn Thr Leu Tyr Leu Gln Met Ser Ser Leu Lys Ser Glu Asp $80 \hspace{1cm} 85 \hspace{1cm} 90$

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Gly Thr Asp Phe Thr Leu Thr Ile Ser His Val Gln Ser Glu Asp Leu Ala Asp Tyr Phe Cys Gln Gln Tyr Asn Ile Tyr Pro Leu Thr Phe Gly Pro Gly Thr Lys Leu Glu Leu Arg Arg Ala Val Ala Ala 135 Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg 155 165 Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr 195 Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser 225 Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys 235

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cctgggctgc ctggtcaagg actacttccc cgaaccggtg acggtgtcgt 550 ggaactcagg cgccctgacc agcggcgtgc acaccttccc ggctgtccta 600 cagtcctcag gactctactc cctcagcagc gtggtgaccg tgccctccag 650 cagcttgggc acccagacct acatctgcaa cgtgaatcac aagcccagca 700 acaccaaggt ggacaagaaa gttgagccca aatcttgtga caaaactcac 750 acatga 756

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Gly Gly Gly Leu Val Pro Pro Gly Gly Ser Leu Lys Leu Ser Cys
- 35 40 45

Ala Ala Ser Gly Phe Ile Phe Ser Ser Tyr Gly Met Ser Trp Val
50 55 60

Arg Gln Thr Pro Gly Lys Ser Leu Glu Leu Val Ala Thr Ile Asn 657075

Asn Asn Gly Asp Ser Thr Tyr Tyr Pro Asp Ser Val Lys Gly Arg 80 85 90

Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr Leu Gln 95 100 105

Met Ser Ser Leu Lys Ser Glu Asp Thr Ala Met Phe Tyr Cys Ala 110 115 120

Arg Ala Leu Ile Ser Ser Ala Thr Trp Phe Gly Tyr Trp Gly Gln
125 130 135

Gly Thr Leu Val Thr Val Ser Ala Ala Ser Thr Lys Gly Pro Ser 140 145 150

Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr 155 160 165

Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val 170 175 180

Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr 185 190 195

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100 Gly Thr Lys Leu Glu Leu Lys Arg Ala Asp Ala Ala Pro Thr Val 115

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Ser His Tyr Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu 35 40 45

Glu Trp Ile Gly Tyr Ile Asp Pro Ser Asn Gly Glu Thr Thr Tyr 50 55 60

Asn Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Val Asp Thr Ser $65 \hspace{1cm} 70 \hspace{1cm} 75$

Ser Ser Thr Ala Asn Val His Leu Ser Ser Leu Thr Ser Asp Asp 80 85 90

Ser Ala Val Tyr Phe Cys Ala Arg Gly Asp Tyr Arg Tyr Asn Gly 95 100 105

Asp Trp Phe Phe Asp Val Trp Gly Ala Gly Thr Thr Val Thr Val 110 115 120

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Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser 35 40 45

Cys Arg Ser Ser Gln Ser Leu Val His Gly Ile Gly Asn Thr Tyr 50 55 60

Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu 65 70 75

Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe $80 \\ 85 \\ 90$

Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg 95 100 105

Val Glu Ala Glu Asp Leu Gly Leu Tyr Phe Cys Ser Gln Ser Thr 110 115 120

His Val Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys 125 130 135

Arg Ala Val Ala Ala Pro Thr Val Phe Ile Phe Pro Pro Ser Ser 140 145 150

Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn 155 160 165

Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn 170 175 180

Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp 185 190 195

Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser 200 205 210

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<221> Artificial Sequence

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Gly	Pro	Glu	Leu	Met 35	Lys	Pro	Gly	Ala	Ser 40	Val	Lys	Ile	Ser	Cys 45
Lys	Ala	Ser	Gly	Tyr 50	Ser	Phe	Ser	Ser	His 55	Tyr	Met	His	Trp	Val 60
Lys	Gln	Ser	His	Gly 65	Lys	Ser	Leu	Glu	Trp 70	Ile	Gly	Tyr	Ile	Asp 75
Pro	Ser	Asn	Gly	Glu 80	Thr	Thr	Tyr	Asn	Gln 85	Lys	Phe	Lys	Gly	Lys 90
Ala	Thr	Leu	Thr	Val 95	Asp	Thr	Ser	Ser	Ser 100	Thr	Ala	Asn	Val	His 105
Leu	Ser	Ser	Leu	Thr 110	Ser	Asp	Asp	Ser	Ala 115	Val	Tyr	Phe	Cys	Ala 120
Arg	Gly	Asp	Tyr	Arg 125	Tyr	Asn	Gly	Asp	Trp 130	Phe	Phe	Asp	Val	Trp 135
Gly	Ala	Gly	Thr	Thr 140	Val	Thr	Val	Ser	Ser 145	Ala	Ser	Thr	Lys	Gly 150
Pro	Ser	Val	Phe	Pro 155	Leu	Ala	Pro	Ser	Ser 160	Lys	Ser	Thr	Ser	Gly 165
Gly	Thr	Ala	Ala	Leu 170	Gly	Cys	Leu	Val	Lys 175	Asp	Tyr	Phe	Pro	Glu 180
Pro	Val	Thr	Val	Ser 185	Trp	Asn	Ser	Gly	Ala 190	Leu	Thr	Ser	Gly	Val 195
His	Thr	Phe	Pro	Ala 200	Val	Leu	Gln	Ser	Ser 205	Gly	Leu	Tyr	Ser	Leu 210
Ser	Ser	Val	Val	Thr 215	Val	Pro	Ser	Ser	Ser 220	Leu	Gly	Thr	Gln	Thr 225
Tyr	Ile	Cys	Asn	Val 230	Asn	His	Lys	Pro	Ser 235	Asn	Thr	Lys	Val	Asp 240
Lys	Lys	Val	Glu	Pro 245	Lys	Ser	Cys	Asp	Lys 250	Thr	His	Thr 253		
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<213> Mus musculus

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<213> Homo sapiens

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Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Lys Thr Ile Ser
20 25 30

Lys Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys 35 40 45

Leu Leu Ile Tyr Tyr Ser Gly Ser Thr Leu Glu Ser Gly Val Pro
50 55 60

Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr 65 70 75

Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln 80 85 90

Gln His Asn Glu Tyr Pro Leu Thr Phe Gly Gln Gly Thr Lys Val 95 100 105

Glu Ile Lys Arg 109

<210> 48

<211> 117

<212> PRT

<213> Mus Musculus

<400> 48

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Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ser Phe Ser 20 25 30

Ser His Tyr Met His Trp Val Lys Gln Ser His Gly Lys Ser Leu 35 40 45

Glu Trp Ile Gly Tyr Ile Asp Pro Ser Asn Gly Glu Thr Thr Tyr
50 55 60

Asn Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Val Asp Thr Ser 65 70 75

Ser Ser Thr Ala Asn Val His Leu Ser Ser Leu Thr Ser Asp Asp 80 85 90

Ser Ala Val Tyr Phe Cys Ala Ala Arg Gly Asp Tyr Arg Tyr Asn 95 100 105

Gly Asp Trp Phe Phe Asp Val Trp Gly Ala Gly Thr 110 115 117

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Pro	Ser	Ser	Leu	Ser 35	Ala	Ser	Val	Gly	Asp 40	Arg	Val	Thr	Ile	Thr 45
Cys	Arg	Ser	Ser	Gln 50	Ser	Leu	Val	His	Gly 55	Ile	Gly	Asn	Thr	Tyr 60
Leu	His	Trp	Tyr	Gln 65	Gln	Lys	Pro	Gly	Lys 70	Ala	Pro	Lys	Leu	Leu 75
Ile	Tyr	Lys	Val	Ser 80	Asn	Arg	Phe	Ser	Gly 85	Val	Pro	Ser	Arg	Phe 90
Ser	Gly	Ser	Gly	Ser 95	Gly	Thr	Asp	Phe	Thr 100	Leu	Thr	Ile	Ser	Ser 105
Leu	Gln	Pro	Glu	Asp 110	Phe	Ala	Thr	Tyr	Tyr 115	Cys	Ser	Gln	Ser	Thr 120
His	Val	Pro	Leu	Thr 125	Phe	Gly	Gln	Gly	Thr 130	Lys	Val	Glu	Ile	Lys 135
Arg	Thr	Val	Ala	Ala 140	Pro	Ser	Val	Phe	Ile 145	Phe	Pro	Pro	Ser	Asp 150
Glu	Gln	Leu	Lys	Ser 155	Gly	Thr	Ala	Ser	Val 160	Val	Cys	Leu	Leu	Asn 165
Asn	Phe	Tyr	Pro	Arg 170	Glu	Ala	Lys	Val	Gln 175	Trp	Lys	Val	Asp	Asn 180
Ala	Leu	Gln	Ser	Gly 185	Asn	Ser	Gln	Glu	Ser 190	Val	Thr	Glu	Gln	Asp 195
Ser	Lys	Asp	Ser	Thr 200	Tyr	Ser	Leu	Ser	Ser 205	Thr	Leu	Thr	Leu	Ser 210
Lys	Ala	Asp	Tyr	Glu 215	Lys	His	Lys	Val	Tyr 220	Ala	Cys	Ğlu	Val	Thr 225
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Glu	Cys													

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245 250 253

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<211> 159
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<213> Artificial Sequence
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 Ala Leu Gln Ser Asp Ala Lys Gly Lys Leu Asp Ser Val Ala Thr
 Asp Tyr Gly Ala Ala Ile Asp Gly Phe Ile Gly Asp Val Ser Gly
 Leu Ala Asn Gly Asn Gly Ala Thr Gly Asp Phe Ala Gly Ser Ser
 Asn Ser Gln Met Ala Gln Val Gly Asp Gly Asp Asn Ser Pro Leu
 Met Asn Asn Phe Arg Gln Tyr Leu Pro Ser Leu Pro Gln Ser Val
 Glu Cys Arg Pro Phe Val Phe Ser Ala Gly Lys Pro Tyr Glu Phe
                 110
                                      115
                                                          120
 Ser Ile Asp Cys Asp Lys Ile Asn Leu Phe Arg Gly Val Phe Ala
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 Phe Leu Leu Tyr Val Ala Thr Phe Met Tyr Val Phe Ser Thr Phe
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<222> 1-780

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<220>

<400> 55

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Ser Ile Ala Thr Asn Ala Tyr Ala Glu Val Gln Leu Val Glu Ser $20 \\ 25 \\ 30$

Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys 35 40 45

Ala Ala Ser Gly Tyr Ser Phe Ser Ser His Tyr Met His Trp Val $50 \\ 55 \\ 60$

Lys Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Tyr Ile Asp 657075

Pro Ser Asn Gly Glu Thr Thr Tyr Asn Gln Lys Phe Lys Gly Arg 80 85 90

Phe Thr Leu Ser Arg Asp Asn Ser Lys Asn Thr Ala Tyr Leu Gln 95 100 105

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<211> 253

<212> PRT

<213> Artificial Sequence

<221> Artificial Sequence

<222> 1-253

<223> recombinant immunoglobulin

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Pro	Ser	Val	Phe	Pro 155	Leu	Ala	Pro	Ser	Ser 160	Lys	Ser	Thr	Ser	Gly 165
Gly	Thr	Ala	Ala	Leu 170	Gly	Cys	Leu	Val	Lys 175	Asp	Tyr	Phe	Pro	Glu 180
Pro	Val	Thr	Val	Ser 185	Trp	Asn	Ser	Gly	Ala 190	Leu	Thr	Ser	Gly	Val 195
His	Thr	Phe	Pro	Ala 200	Val	Leu	Gln	Ser	Ser 205	Gly	Leu	Tyr	Ser	Leu 210
Ser	Ser	Val	Val	Thr 215	Val	Pro	Ser	Ser	Ser 220	Leu	Gly	Thr	Gln	Thr 225
Tyr	Ile	Cys	Asn	Val 230	Asn	His	Lys	Pro	Ser 235	Asn	Thr	Lys	Val	Asp 240
Lys	Lys	Val	Glu	Pro 245	Lys	Ser	Cys	Asp	Lys 250	Thr	His	Thr 253		
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Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Ser Gln Ser Thr 110 120 His Val Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser 200 210 Lys Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys 242 <210> 57 <211> 45 <212> PRT <213> Artificial Sequence <220> <221> Artificial Sequence <222> 1-45 <223> recombinant leucine zipper peptide <400> 57 Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Arg Met Lys Gln Leu Glu Asp Lys Val Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Leu Val Gly Glu Arg 40 <210> 58 <211> 780 <212> DNA <213> Artificial Sequence <220> <221> Artificial Sequence <222> 1-780 <223> recombinant immunoglobulin <400> 58

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- <211> 298
- <212> PRT
- <213> Artificial Sequence
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- <222> 1-298
- <223> recombinant immunoglobulin
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- Gly Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg Leu Ser Cys 35 40 45
- Ala Ala Ser Gly Tyr Ser Phe Ser Ser His Tyr Met His Trp Val 50 55 60
- Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Gly Tyr Ile Asp
 65 70 75
- Pro Ser Asn Gly Glu Thr Thr Tyr Asn Gln Lys Phe Lys Gly Arg $80 \hspace{1cm} 85 \hspace{1cm} 90$
- Phe Thr Leu Ser Arg Asp Asn Ser Lys Asn Thr Ala Tyr Leu Gln 95 100 105
- Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys Ala 110 115 120
- Arg Gly Asp Tyr Arg Tyr Asn Gly Asp Trp Phe Phe Asp Val Trp 125 130 135
- Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly 140 145 150

Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly 155 160 Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val 195 His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr 215 220 225 Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp 230 Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Arg Met Lys Gln Leu Glu Asp Lys Val Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu 285 Asn Glu Val Ala Arg Leu Lys Lys Leu Val Gly Glu Arg 295

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atacgctgat atccagatga cccagtcccc gagctccctg tccgcctctg 550 tgggcgatag ggtcaccatc acctgcaggt caagtcaaag cttagtacat 600 ggtataggtg ctacgtattt acactggtat caacagaaac caggaaaagc 650 tccgaaacta ctgatttaca aagtatccaa tcgattctct ggagtccctt 700 ctcgcttctc tggatccggt tctgggacgg atttcactct gaccatcagc 750 agtctgcagc cagaagactt cgcaacttat tactgttcac agagtactca 800 tgtcccgctc acgtttggac agggtaccaa ggtggagatc aaacgaactg 850 tggctgcacc atctgtcttc atcttcccgc catctgatga gcagttgaaa 900 tetggaactg ettetgttgt gtgeetgetg aataaettet ateecagaga 950 ggccaaagta cagtggaagg tggataacgc cctccaatcg ggtaactccc 1000 aggagagtgt cacagagcag gacagcaagg acagcaccta cagcctcagc 1050 agcaccetga egetgageaa agcagaetae gagaaacaea aagtetaege 1100 ctgcgaagtc acccatcagg gcctgagctc gcccgtcaca aagagcttca 1150 acaggggaga gtgttaagct gatcctctac gccggacgca tcgtggccct 1200 agtacgcaac tagtcgtaaa aagggtatct agaggttgag gtgattttat 1250 gaaaaagaat atcgcatttc ttcttgcatc tatgttcgtt ttttctattg 1300 ctacaaacgc gtacgctgag gttcagctag tgcagtctgg cggtggcctg 1350 gtgcagccag ggggctcact ccgtttgtcc tgtgcagctt ctggctactc 1400 cttctcgagt cactatatgc actgggtccg tcaggccccg ggtaagggcc 1450 tggaatgggt tggatatatt gatccttcca atggtgaaac tacgtataat 1500 caaaagttca agggccgttt cactttatct cgcgacaact ccaaaaacac 1550 agcatacctg cagatgaaca gcctgcgtgc tgaggacact gccgtctatt 1600 actgtgcaag aggggattat cgctacaatg gtgactggtt cttcgacgtc 1650 tggggtcaag gaaccetggt caccgtetee teggeeteea ecaagggeee 1700 ateggtette eccetggeae cetectecaa gageacetet gggggeacag 1750 eggeeetggg etgeetggte aaggaetaet teeeegaace ggtgaeggtg 1800 tcgtggaact caggcgccct gaccagcggc gtgcacacct tcccggctgt 1850 cctacagtcc tcaggactct actccctcag cagcgtggtg accgtgccct 1900 ccagcagett gggcacccag acctacatet gcaacgtgaa teacaageee 1950 agcaacacca aggtcgacaa gaaagttgag cccaaatctt gtgacaaaac 2000 tcacacatge cegeegtgee cageaceaga actgetggge ggeegeatga 2050

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Pro

256

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Ser	His	Tyr	Met	His 35	Trp	Val	Arg	Gln	Ala 40	Pro	Gly	Lys	Gly	Leu 45
Glu	Trp	Val	Gly	Tyr 50	Ile	Asp	Pro	Ser	Asn 55	Gly	Glu	Thr	Thr	Tyr 60
Asn	Gln	Lys	Phe	Lys 65	Gly	Arg	Phe	Thr	Leu 70	Ser	Arg	Asp	Asn	Ser 75
Lys	Asn	Thr	Ala	Tyr 80	Leu	Gln	Met	Asn	Ser 85	Leu	Arg	Ala	Glu	Asp 90
Thr	Ala	Val	Tyr	Tyr 95	Cys	Ala	Arg	Gly	Asp 100	Tyr	Arg	Tyr	Asn	Gly 105
Asp	Trp	Phe	Phe	Asp 110	Val	Trp	Gly	Gln	Gly 115	Thr	Leu	Val	Thr	Val 120
Ser	Ser	Ala	Ser	Thr 125	Lys	Gly	Pro	Ser	Val 130	Phe	Pro	Leu	Ala	Pro 135
Ser	Ser	Lys	Ser	Thr 140	Ser	Gly	Gly	Thr	Ala 145	Ala	Leu	Gly	Cys	Leu 150
Val	Lys	Asp	Tyr	Phe 155	Pro	Glu	Pro	Val	Thr 160	Val	Ser	Trp	Asn	Ser 165
Gly	Ala	Leu	Thr	Ser 170	Gly	Val	His	Thr	Phe 175	Pro	Ala	Val	Leu	Gln 180
Ser	Ser	Gly	Leu	Tyr 185	Ser	Leu	Ser	Ser	Val 190	Val	Thr	Val	Pro	Ser 195
Ser	Ser	Leu	Gly	Thr 200	Gln	Thr	Tyr	Ile	Cys 205	Asn	Val	Asn	His	Lys 210
Pro	Ser	Asn	Thr	Lys 215	Val	Asp	Lys	Lys	Val 220	Glu	Pro	Lys	Ser	Cys 225
Asp	Lys	Thr	His	Thr 230	Cys	Pro	Pro	Cys	Pro 235	Ala	Pro	Glu	Leu	Leu 240
Gly	Gly	Pro	Ser	Val	Phe	Leu	Phe	Pro	Pro	Lys	Pro	Lys	Asp	Thr

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Val	Ser	His	Glu	Asp 275	Pro	Glu	Val	Lys	Phe 280	Asn	Trp	Tyr	Val	Asp 285
Gly	Val	Glu	Val	His 290	Asn	Ala	Lys	Thr	Lys 295	Pro	Arg	Glu	Glu	Gln 300
Tyr	Asn	Ser	Thr	Tyr 305	Arg	Val	Val	Ser	Val 310	Leu	Thr	Val	Leu	His 315
Gln	Asp	Trp	Leu	Asn 320	Gly	Lys	Glu	Tyr	Lys 325	Cys	Lys	Val	Ser	Asn 330
Lys	Ala	Leu	Pro	Ala 335	Pro	Ile	Glu	Lys	Thr 340	Ile	Ser	Lys	Ala	Lys 345
Gly	Gln	Pro	Arg	Glu 350	Pro	Gln	Val	Tyr	Thr 355	Leu	Pro	Pro	Ser	Arg 360
Glu	Glu	Met	Thr	Lys 365	Asn	Gln	Val	Ser	Leu 370	Thr	Cys	Leu	Val	Lys 375
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Gln	Pro	Glu	Asn	Asn 395	Tyr	Lys	Thr	Thr	Pro 400	Pro	Val	Leu	Asp	Ser 405
Asp	Gly	Ser	Phe	Phe 410	Leu	Tyr	Ser	Lys	Leu 415	Thr	Val	Asp	Lys	Ser 420
Arg	Trp	Gln	Gln	Gly 425	Asn	Val	Phe	Ser	Cys 430	Ser	Val	Met	His	Glu 435
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His Gly Ile Gly Ala Thr Tyr Leu His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Ser Gln Ser Thr His Val Pro Leu Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val 110 Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala 130 125 Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln 155 Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys 185 Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val 205

Thr Lys Ser Phe Asn Arg Gly Glu Cys